

Ergonomics Standard

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Lawrence
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Preface

The Ergonomics Standard is one of several local Lawrence Livermore National Laboratory (LLNL) environmental, safety, and health standards that was prepared during the Work Smart Standards Closure Process to address areas not adequately covered by Department of Energy orders or national consensus standards. The original version was approved on March 16, 1999. Questions or comments about this standard should be addressed to the Technical Support and Policy Development Division Industrial Safety Technical Leader in the Hazards Control Department.

Lawrence Livermore National Laboratory

Ergonomics Standard

1.0 Purpose

This standard has been developed by LLNL to reduce the risk of injuries or illnesses from work that typically involves repetitive activity—such as office, laboratory, repair, and maintenance tasks—or that is physically demanding. LLNL works to be proactive in recognizing and preventing ergonomic-related injuries/illnesses.

2.0 Scope and Application

This standard applies to all LLNL workplaces and jobs where an employee may be exposed to ergonomic risk factors. This standard will be applied proactively to Laboratory operations.

3.0 Applicable Reference Standards

- American National Standards Institute/Human Factors Society, “Human Factors Engineering of Visual Display Work Stations,” ANSI/HFS 100 (1988).
- National Institute for Occupational Safety and Health, Department of Health and Human Services, “Elements of Ergonomics Programs, A Primer Based on Workplace Evaluations of Musculoskeletal Disorders,” NIOSH Publication No. 97-117 (March 1997).
- American Meat Institute, “Management Strategies for Preventing Strains and Sprains: A Guide to Practical Ergonomics,” Washington, D.C. (1988).
- California Occupational Safety and Health Standards, Title 8, Section 5110, “Ergonomics” (July 3, 1997).

4.0 Required Standards

- Illuminating Engineering Society (IES), “Lighting Handbook,” IES of North America, 345 East 47th Street, NY 10017 (latest edition).

5.0 General Requirements

An ergonomic evaluation must be performed when conducting hazard or risk assessments and during the evaluation of workstations and the design of new facilities. Risk-based assessment techniques must be used to identify those ergonomic risk factors that early intervention can control. The employer and employee shall consider both engineering and administrative controls to mitigate ergonomic risk factors.

Personal protective equipment (PPE) must be used to supplement engineering or administrative controls when such controls do not sufficiently reduce the risk. PPE shall not be used as a substitute for engineering or administrative control measures.

Preventive activities include workplace evaluation, ergonomics-sensitive design, employee training and education, and professional medical case management.

Employees at risk shall be informed of the following:

- Ergonomic risk factors and hazards.
- Signs and symptoms of work-related cumulative trauma disorders (CTDs).
- Risk factors and hazard control measures.
- The person to whom the employee should report risk factors and symptoms of CTDs.
- Their responsibility to use controls and safe work habits.

Management will visibly support the purpose and requirements of the ergonomics program.

LLNL will identify CTDs and acute strains to minimize the severity of associated injuries and to develop control measures to reduce the risk of similar occurrences. Common CTDs are given in Table 1.

Table 1. Common cumulative trauma disorders.

Injury	Symptoms	Causes
Carpal tunnel syndrome	Early symptoms include numbness or tingling and burning sensations in the fingertips. An aching sensation and wrist pain (mostly at night) are also typical in many cases.	Too much pressure on the median nerve, which runs through the wrist.
Tendonitis	Pain, tenderness, swelling, weakness of the hand or shoulder, and even redness of the hand or wrist.	Over-stretching or constriction of the tendons of the hands and wrists, causing inflammation of the tendons.
Tenosynovitis	Swelling, tenderness, and pain in the hand or arm.	Inflammation of the tendon and the sheath that covers it.
Epicondylitis (tennis elbow)	Pain with some swelling and weakness.	Inflammation of the tendons in the elbow.
Trigger finger	A snapping and jerking movement occurs when attempting to move the finger.	The tendon sheath is swollen sufficiently to lock the tendon in the sheath.
Rotator cuff injury	Pain and limited movement of the shoulder.	One or more of the four rotator cuff tendons in the shoulder is inflamed.
DeQuervain's disease	Pain and difficulty in movement.	Progressive constriction of the tendon sheath. This disease affects the tendons on the side of the wrist and at the base of the thumb.
White finger (vibration syndrome or Raynaud's Phenomenon)	Paleness in the fingers, tingling, and a sense that the finger is "on fire."	Blood vessels in the fingers are damaged, especially due to the use of vibrating tools in cold weather.

6.0 Implementation

This standard will be implemented in accordance with the LLNL *Environment, Safety & Health Manual* and other documents determined to be appropriate.